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PATENT
Attorney Docket No.: 18564-003010US
Client Reference No.: CIT: 2663

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Nathan S. Lewis, *et al.*

Application No.: Unassigned

Filed: February 19, 1999

For: COMPOSITIONALLY DIFFERENT POLYMER-BASED SENSOR ELEMENTS AND METHOD FOR PREPARING SAME

Art Unit: Unassigned

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to calculation of the filing fee of the above-referenced application, please enter the following amendments and remarks.

IN THE CLAIMS:

Please cancel claims 1-231 without prejudice or disclaimer.

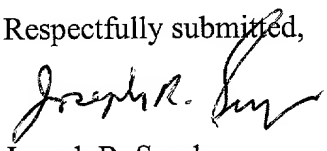
REMARKS

Claims 232-269 are pending in this application and are presented for examination. Claims 1-231 have been canceled without prejudice. The pending claims are set forth in the Appendix for the Examiner convenience. Early action on the merits is respectfully requested.

CONCLUSION

Applicants respectfully request early action on the merits of the pending claims. If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 925-472-5002.

Respectfully submitted,



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PENDING CLAIMS

232. A method of manufacturing a combinatorial sensor array for detecting an analyte in a fluid comprising the steps of:

providing a first solution of a first organic material at a concentration x in a first solvent, a second solution of a second organic material at a concentration y in a second solvent, and a substrate having a first preselected region and a second preselected region;

contacting said first region with said first solution at said concentration x;

contacting the second region with the first solution at said concentration x+a;

contacting the first region with said second solution at said concentration y; and

contacting the second region with the second solution at said concentration y+b,

wherein, the first region forms a first sensor having a blend of the first organic material at mole fraction m and the second organic material at mole fraction 1-m and the second region forms a second sensor having a blend of the first organic material at mole fraction n and the second organic material of mole fraction 1-n, said two sensors forming a combinatorial sensor array.

233. The method of claim 232, wherein m = n.

234. The method of claim 232, wherein x=y.

235. The method of claim 232, wherein a=b.

236. The method of claim 232, wherein a and b are positive numbers.

237. The method of claim 232, wherein a and b are negative numbers.

238. The method of claim 232, wherein the first organic material is a first polymer.

239. The method of claim 232, wherein the second organic material is a second polymer.

240. The method of claim 232, wherein the first organic material is a first polymer and the second organic material is a second polymer.

241. The method of claim 240, wherein the first polymer is different from the second polymer.

242. The method of claim 232, wherein the first organic material is a first monomer, and further comprising the step of:

polymerizing said first monomer by applying an activating agent to the first region and to the second region.

243. The method of claim 242, wherein said activating agent is selected from the group consisting of light, heat and chemical.

244. The method of claim 232, wherein the second organic material is a second monomer, and further comprising the step of:

polymerizing said second monomer by applying an activating agent to the first region and to the second region.

245. The method of claim 244, wherein said activating agent is selected from the group consisting of light, heat and chemical.

246. The method of claim 232, wherein the first solution is miscible in the second solution.

247. The method of claim 246, wherein said first solvent is the same as said second solvent.

248. The method of claim 232, wherein the step of contacting comprises spraying.

249. The method of claim 232, wherein the step of contacting comprises a step selected from the group consisting of coating, pipetting, micropipetting, depositing, spinning, evaporating, dipping and flowing.

250. The method of claim 232, wherein, after the step of contacting said first region with said first solution at said concentration x, the method further comprises the step of varying the concentration of the first organic material in the first solution to concentration x+a.

251. The method of claim 250, wherein the concentration of the first organic material in the first solution is smoothly varied to concentration x+a.

252. The method of claim 250, wherein, after the step of varying the concentration of the first organic material in the first solution to concentration x+a, the method further comprises the step of moving the first solution to said second region.

253. The method of claim 232, wherein, after the step of contacting said first region with said second solution at said concentration y, the method further comprises the step of varying the concentration of the second organic material in the second solution to concentration y+b.

254. The method of claim 253, wherein the concentration of the second organic material in the second solution is smoothly varied to concentration y+b.

255. The method of claim 232, wherein, after the step of varying the concentration of the second organic material in the second solution to y+b, the method further comprises the step of moving the second solution to said second region.

256. The method of claim 232, wherein the first preselected region and the second preselected region on the substrate are physically separated.

257. The method of claim 256, wherein the first region is recessed below the surface of the substrate in a first well and the second region is recessed below the surface of the substrate in a second well, the first well physically separated from the second well.

258. The method of claim 256, wherein the first region is surrounded by ridges on the surface of the substrate and the second region is surrounded by ridges on the surface of the substrate, the first region physically separated from the second region.

259. The method of claim 258, wherein said ridges are formed from photodefinable material.

260. The method of claim 258, wherein said ridges are formed from sputtered material.

261. The method of claim 232, wherein the substrate further comprises a third preselected region and a fourth preselected region, the four preselected regions arranged in an array, the array having a top edge, a bottom edge, a left edge and a right edge, the top edge adjacent to regions 1 and 2, the bottom edge adjacent to regions 3 and 4, the left edge adjacent to regions 1 and 3, and the right edge adjacent to regions 2 and 4, and further comprising the steps of:

contacting said first region and said second region near said top edge of said array with said first solution at concentration x;

contacting said third and fourth regions with the first solution at concentration x+a;

contacting the first and third regions near said left edge of the array with said second solution at concentration y; and

contacting the second and fourth regions with the second solution at concentration y+b,

wherein, each region forms a sensor having a blend of the first organic material and the second organic material, said sensors forming a combinatorial sensor array.

262. The method of claim 261, wherein the mole fraction of the first organic material the first sensor is e, in the second sensor is f, in the third sensor is g and in the fourth sensor h.

263. The method of claim 262, wherein e, f, g and h are all different numbers.

264. The method of claim 261, wherein, after the step of contacting said first region and said second region near the top edge of said array with said first solution at concentration x, the method further comprises the step of varying the concentration of the first organic material in the first solution to concentration x+a.

265. The method of claim 264, wherein the concentration of the first organic material in the first solution is smoothly varied to concentration x+a.

266. The method of claim 264, wherein, after the step of varying the concentration of the first organic material in the first solution to concentration x+a, the method further comprises the step of moving the first solution from near the top of the array in the direction of said bottom of the array.

267. The method of claim 261, wherein, after the step of contacting said first and third regions near the left edge of said array with said second solution at concentration y, the method further comprises the step of varying the concentration of the second organic material in the second solution to concentration y+b.

268. The method of claim 267, wherein the concentration of the second organic material in the second solution is smoothly varied to concentration y+b.

269. The method of claim 267, wherein, after the step of varying the concentration of the second organic material in the second solution to concentration y+b, the method further comprises the step of moving the second solution from near the left edge of the array in the direction of said right edge of the array.